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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,188	07/02/2003	Keisuke Aoki	450100-04648	5303

7590 05/18/2007

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EXAMINER	
DUONG, CHRISTINE T	

ART UNIT	PAPER NUMBER
2609	

MAIL DATE	DELIVERY MODE
05/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/612,188	AOKI, KEISUKE	
	Examiner	Art Unit	
	Christine Duong	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-3,8-13 and 18-20* is/are rejected.

7)☐ Claim(s) *4-7 and 14-17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/20/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The references listed in the Information Disclosure Statement, filed on 20 July 2006, have been considered by the examiner (see attached PTO-1449 form or PTO/SB/08A and 08B forms).

Claim Objections

2. **Claims 1-20** are objected to because of the following informalities:

Regarding **Claims 1-2, 8-12, 18-20**, the limitations "the generated multiplexing instruction data", "the multiplexing instruction data" and "the read multiplexing instruction data" are believed to mean the same thing but are used interchangeably. It is suggested that the terminology used in the claims stays consistent.

Regarding **Claims 2-7, 12-17**, the limitations "the command data", "the command instruction data" and "the read command instruction data" are believed to mean the same thing but are used interchangeably. It is suggested that the terminology used in the claims stays consistent.

For the examination on the merits, the claims will be interpreted as best understood. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 1-11** and **13** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-10 recite the limitation "the apparatus" in Line 2 in Claims 1-2, 8, 10 and Line 1 in Claims 3-7, 9. There is insufficient antecedent basis for this limitation in the claim. It is suggested to rewrite the limitation "the apparatus" as --the multiplexer--.

Claims 11 and **13** are directed to a method; however, the body of the claim contains some or no steps. Rather, some or all are structures or elements. Therefore, it is unclear. In addition, the language of the claim is awkward.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1-3** and **11-13** are rejected under 35 U.S.C. 102(e) as being anticipated by Houtepen et al. (PG Pub US 2002/0012361 A1).

Regarding **Claims 1** and **11**, Houtepen et al. discloses a multiplexing method in which a plurality of elementary data streams is multiplexed to generate

one multiplexed stream (**"the video information and the audio information are "produced" in two separate streams, in packetised form. These two streams are to be combined into one single stream", [0022]**), the method comprising the steps of:

supplying a plurality of elementary data streams and storing the supplied elementary data streams into a memory (**"memory structure in which the video prepackets and the audio prepackets as received are stored", [0022]**);

generating multiplexing instruction data having stated therein a storage location, in the memory, of a data unit composed of successive elementary data streams each in an arbitrary amount correspondingly to each data unit and storing the generated multiplexing instruction data into the memory in an order of multiplexing corresponding data units (**"The operation of placing video packets and audio packets behind each other in a suitable order ... under the control of a control unit 140" and "memory structure ... wherein the control unit 140 decides whether an audio prepacket or a video prepacket is to be retrieved and outputted", Figs 1 and 4A and [0022]**); and

generating means for generating one multiplexed stream by reading the multiplexing instruction data sequentially one by one from the memory, reading the data units sequentially from the storage locations stated in the read multiplexing instruction data and by outputting the read data units (**"These two streams are to be combined into one single stream" and "The operation of placing video packets and audio packets behind each other in a suitable order is performed by a functional block called "multiplexer", indicated at**

150" and "memory structure ... from which prepackets are retrieved for outputting, wherein the control unit 140 decides whether an audio prepacket or a video prepacket is to be retrieved and outputted", Figs. 1 and 4A and [0022]).

Regarding **Claims 2** and **12**, Houtepen et al. discloses a multiplexing method in which a plurality of elementary data streams is multiplexed to generate one multiplexed stream **("the video information and the audio information are "produced" in two separate streams, in packetised form. These two streams are to be combined into one single stream", [0022])**, the method comprising the steps of:

supplying a plurality of elementary data streams and storing the supplied elementary data streams into a memory **("memory structure in which the video prepackets and the audio prepackets as received are stored", [0022])**;

generating multiplexing instruction data having stated therein a storage location, in the memory, of a data unit composed of successive elementary data streams each in an arbitrary amount correspondingly to each data unit while generating command instruction data having stated therein an instruction for execution of a data processing to be executed in an arbitrary position in the multiplexing instruction data, and storing the generated multiplexing instruction data and command instruction data into the memory in an order of multiplexing data units and execution instruction **("The operation of placing video packets and audio packets behind each other in a suitable order ... under the control of a control unit 140" and "memory structure ... wherein the control**

unit 140 decides whether an audio prepacket or a video prepacket is to be retrieved and outputted", Figs 1 and 4A and [0022]; and "audio parser 12 that receives the elementary audio stream EAS, and is designed to parse the elementary audio stream EAS and derive therefrom the data necessary for inclusion in the packet headers 72 and the pack headers 82, especially said ESDF data. Similarly, the video channel 20 comprises a video parser 22", [0026]);

generating one multiplexed stream including the elementary data streams and command data by reading the multiplexing instruction data and command instruction data sequentially one by one from the memory, reading the data units sequentially from the storage locations stated in the read multiplexing instruction data and outputting the read data units, when having read the multiplexing instruction data, or by outputting command data having stated therein the execution instruction stated in the command instruction data, when having read the command instruction data **("These two streams are to be combined into one single stream", "The operation of placing video packets and audio packets behind each other in a suitable order is performed by a functional block called "multiplexer", indicated at 150" and "memory structure ... from which prepackets are retrieved for outputting, wherein the control unit 140 decides whether an audio prepacket or a video prepacket is to be retrieved and outputted", Figs. 1 and 4A and [0022] and "supplemented by padding packets or stuffing bytes in view of the fact that the packets may have varying lengths", [0031] and "For the meta bytes, 16 bytes may be**

appended to the prepackets or the prepacks. In the case of a video pack, the information contained in the video meta bytes can be as follows: Flags: GOP start, GGOP start, SEQ End, Padding needed, [0040-0042]); and

being supplied with a multiplexed stream output from the multiplexed stream generating means and making a processing corresponding to an instruction content stated in the command data when the data row in the input multiplexed stream is command data, or outputting the input multiplexed stream as it is when the data row in the input multiplexed stream is elementary data stream **("The multiplexer 50 receives the streams of audio prepacks 80A and video prepacks 80V, including the meta bytes 73, and puts the audio prepacks and video prepacks, including the meta bytes 73, in a suitable order, under the control of the control unit 40, similarly as described above. This single stream is received by a functional block which is referred to as finisher 90. The finisher removes the meta bytes 73 from the data stream, and reads the ESDF data in the meta bytes 73. The finisher 90 is designed to finish the packet headers 72 of the prepackets 70 by filling-in the finishing data in the open packet header data fields, thus producing packets. Further, the finisher 90 is designed to finish the pack headers 82 of the prepacks 80 by filling-in the finishing data in the open pack header data fields, thus producing packs", [0034]).**

Regarding **Claims 3** and **13**, Houtepen et al. discloses everything claimed as applied above (see *Claims 2* and *12*). In addition, an ID flag for identifying which the data row in the multiplexed stream is, command data or elementary

data stream, is outputted synchronously with the multiplexed stream; and it is judged based on the ID flag which the data row in the supplied multiplexed stream is, command data or elementary data stream **("For the meta bytes, 16 bytes may be appended to the prepackets or the prepacks. In the case of a video pack, the information contained in the video meta bytes can be as follows: Flags: GOP start, GGOP start, SEQ End, Padding needed", [0041-0042]).**

7. **Claims 10** and **20** are rejected under 35 U.S.C. 102(e) as being anticipated by Zaun et al. (PG Pub US 2001/0024456 A1).

Regarding **Claims 10** and **20**, Zaun et al. discloses a multiplexing method in which a plurality of elementary data streams is multiplexed to generate a plurality of multiplexed streams **("receives six MPEG-2 input transport streams and generates two independent MPEG-2 output transport streams", [0012])**, the method comprising the steps of:

supplying a plurality of elementary data streams and storing the supplied elementary data streams into a memory **("there are six input interfaces 118, PID filter tables 122, and input processors 120, so this embodiment can accept six separate MPEG-2 input streams", [0015] and "input processor 120 writes data to the packet buffer 104 as the data is received", [0021] and Claim 1)**;

generating multiplexing instruction data having stated therein a storage location, in the memory, of a data unit composed of successive elementary data streams each in an arbitrary amount correspondingly to each data unit and

storing the generated multiplexing instruction data into the memory in an order of multiplexing corresponding data units (**"input packet data and address data is directed to the packet buffers via a data multiplexer 210 and address multiplexer 212 under the control of timing and control circuitry", [0024] and "host processor that controls the operation of the input processing portion, wherein each input interface has a corresponding packet identifier table", Claim 6, Figs. 1 and 2**);

stating, in the multiplexing instruction data, the type of a multiplexed stream resulted from multiplexing data units corresponding to the generated multiplexing instruction data (**"re-multiplexer host processor 114 controls the packet data flow operation and reads the input processor 120 status as packets travel through the re-multiplexer module 100", [0027], Figs. 1 and 2**); and

generating a plurality of multiplexed streams by reading the multiplexing instruction data sequentially one by one from the memory, reading the data units sequentially from the storage locations stated in the read multiplexing instruction data and by outputting the read data units and by switching the outputting of the read data unit correspondingly to the multiplexed stream type stated in the read multiplexing instruction data (**"the output processor 124 reads the selected packet data from the input packet buffers and/or the insert packet buffer 112, performs PID remapping, program clock reference (PCR) correction and any other desired or required packet editing, and may also insert new PID fields and other MPEG control information into the output streams as**

directed by the CPU. The output processing section then generates two or more independent high-speed transport multiplex (HSTM) output streams incorporating the selected packet data", [0035] and "chip selects to access data in the packet buffer as instructed by the output stream data registers. The chip selects in particular are used by the output processor 124 to read selected individual "chips" in the packet buffers 104", [0036]).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. **Claims 8-9, 18-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Dobson et al. (US Patent No. 6,188,703 B1) further in view of Houtepen et al.

Regarding **Claims 8** and **18**, Dobson et al. discloses a multiplexing method in which a plurality of elementary data streams is multiplexed to generate one multiplexed stream **(Fig. 3)**, the method comprising the steps of:

supplying a plurality of elementary data streams and storing the supplied elementary data streams into a memory **("FIFO's 32 (see FIG. 4) which buffer the video and audio elementary stream data", see Dobson et al.: Column 3, Lines 66-67 and Claim 1)**;

generating multiplexing instruction data having stated therein a storage location, in the memory, of a data unit composed of successive elementary data streams each in an arbitrary amount correspondingly to each data unit and storing the generated multiplexing instruction data into the memory in an order of multiplexing corresponding data units (**"mux processor 22 is alerted when there is a video start-code in the transport packet payload that is about to read", see Dobson et al.: Column 4, Lines 11-13 and "Data entry into the FIFO 32 is controlled by FIFO write logic 41 in the mux logic circuits 16 and 18" see Dobson et al.: Column 4, Lines 43-44**); and

generating one multiplexed stream by reading the multiplexing instruction data sequentially one by one from the memory, reading the data units sequentially from the storage locations stated in the read multiplexing instruction data and by outputting the read data units (**"multiplexed together with audio and video data and sent to the NIC 15 in packets", see Dobson et al.: Column 3, Lines 34-36 and Fig. 3**);

in the instruction generating step, there being added the data amount of a data unit corresponding to the generated multiplexing instruction data to a count in a counter indicating data occupancy of the memory (**"A video FIFO fullness counter 40 (see FIG. 4) then keeps track of the number of bytes of video data in the FIFO 32 at any time", see Dobson et al.: Column 4, Lines 3-6 and Claim 1**); and

the data amount of data unit output from the memory being subtracted from the count (**"The start-code position counter 48 only counts down on**

compressed data FIFO reads by the mux 30", see Dobson et al.: Column 4, Lines 33-35).

However, Dobson et al. fails to specifically disclose that reading the data units sequentially from the storage locations stated in the read multiplexing instruction data and outputting the read data units.

Nevertheless, Houtepen et al. teaches **"the operation of placing video packets and audio packets behind each other in a suitable order is performed by a functional block called "multiplexer", indicated at 150" and "memory structure ... from which prepackets are retrieved for outputting, wherein the control unit 140 decides whether an audio prepacket or a video prepacket is to be retrieved and outputted" (see Houtepen et al.: Figs. 1 and 4A and [0022]).**

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Dobson et al.'s invention to read the data units sequentially from the storage locations stated in the read multiplexing instruction data and output the read data units because **"the control unit 140 decides whether a video prepacket or an audio prepacket is to be outputted" (Houtepen et al.: [0022]).**

Regarding **Claims 9** and **19**, Dobson et al. and Houtepen et al. disclose everything claimed as applied above (see *Claims 8* and *18*). In addition,

the memory is divided in a plurality of storage areas correspondingly to the types of the elementary data streams and the supplied elementary data streams is stored into corresponding storage areas **("FIFO's 32 (see FIG. 4) which**

buffer the video and audio elementary stream data", see Dobson et al.: Column 3, Lines 66-67 and Claim 1; in addition "The audio mux logic circuit 18 performs similar functions to the video mux logic circuit 16. It buffers the audio elementary stream data", see Dobson et al.: Column 4, Lines 48-50 and Claim 1; therefore, the audio elementary stream data gets its own FIFO as well because "Audio logic is implemented in exactly the same way as the video logic and is implemented in the same logic block", see Dobson et al.: Column 4, Lines 54-56);

the counter holds a plurality of counts corresponding to the storage areas in the memory **("A video FIFO fullness counter 40 (see FIG. 4) then keeps track of the number of bytes of video data in the FIFO 32 at any time", see Dobson et al.: Column 4, Lines 3-6 and Claim 1; and because "Audio logic is implemented in exactly the same way as the video logic and is implemented in the same logic block", see Dobson et al.: Column 4, Lines 54-56, the audio FIFO gets its own fullness counter)**;

the data amount of a data unit corresponding to the generated multiplexing instruction data is added to a count corresponding to a storage area in which the data unit is stored **("A video FIFO fullness counter 40 (see FIG. 4) then keeps track of the number of bytes of video data in the FIFO 32 at any time", see Dobson et al.: Column 4, Lines 3-6 and Claim 1; and because "Audio logic is implemented in exactly the same way as the video logic and is implemented in the same logic block", see Dobson et al.: Column 4, Lines 54-56, the audio FIFO also adds the bytes in its respective counter)**;

and the data amount of data unit output from the memory is subtracted from a count corresponding to the storage area in which the data unit is stored **("The start-code position counter 48 only counts down on compressed data FIFO reads by the mux 30", see Dobson et al.: Column 4, Lines 33-35; and because "Audio logic is implemented in exactly the same way as the video logic and is implemented in the same logic block", see Dobson et al.: Column 4, Lines 54-56, the audio FIFO also subtracts the bytes in its respective counter).**

Allowable Subject Matter

10. **Claims 4-7, 14-17** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Citation of Pertinent Prior Art

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kumaki et al. (US Patent No. 6,792,006 B1) discloses the data multiplexing device includes a header information memory storing header information, ES buffers holding encoded data of a plurality of media, an output buffer holding packetized data, and a transfer controlling unit controlling a transfer of the header information stored in the header information memory and the encoded data held in the ES buffers and writing into the output buffer as the packetized data.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Duong whose telephone number is (571) 270-1664. The examiner can normally be reached on Monday - Friday: 730 AM-5 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on (571) 272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lana M. Le
5-11-07
LANA LE
PRIMARY EXAMINER

CTD 05/10/2007